

INDUSTRIAL TRAINING.

REPORT

OF

MR. G. BAMBERGER,
Principal

OF THE

NEW YORK WORKINGMAN'S SCHOOL,

IN THE NAME OF THE COMMITTEE
FOR INDUSTRIAL TRAINING OF THE GERMAN-AMERICAN
TEACHERS' ASSOCIATION, AT CLEVELAND, O.
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In presenting to you my report upon the subject of Industrial Training I am happy to announce that the achievements of the past year show a decided progress in this field of our labors. This is the more gratifying, from the fact that our present advanced position has not been gained without first having to overcome a strong and determined opposition. It is true, that of late years this opposition has not been so openly avowed as formerly, but it has existed none the less. He who has stood upon some rocky sea-coast, has seen the mighty waves dashing in their wild rage against the impregnable cliff. After every such assault, there would ensue a moment of apparent calm, when the great billow, broken and foaming, returned into the endless sea, only to hurl itself with renewed violence against the immovable shore.

Such a period of treacherous calm we have been passing through in our recent experience. We have taken our stand upon the principle of the harmonious development of the whole human being as upon a firm and steadfast rock. We have seen the waves of a powerful opposition again and again dashing themselves against our stronghold. We have watched each intervening lull, that only gave warning of a fresh attack. And we have the satisfaction of knowing that the utmost that

all this opposition has been able to effect, has been the clearing of our rock from rubbish which we would gladly spare. Its foundations stand as firmly as ever,—their stability is assured.

Strangely enough, the principle of complete harmonious development, as applied to education, has met with opposition from some whose brightest ideals would seem to be involved in its success. I need not remind you how the question of industrial training, as a part of general training, has been treated by most of the delegates of a Teachers' Association in Germany. But in spite of all hostility, whether from without or from within, the subject of industrial training has already attracted the favorable attention of thousands of enlightened and sincere educators. It is, in fact, in a fair way of being generally recognized as an essential part of school-work, wherever the cardinal principle on which it rests is regarded as the guiding star in educational matters. This state of affairs has, to a great measure, been brought about through the successful experiments made in the workshops already established in connection with the ordinary schoolwork.

During the last year it seemed as if an armistice had been contracted between those who favor and those who oppose manual training in our schools. The party which entertain doubts in regard to the beneficial working of this new feature in school life has been looking out for substantial proofs, while its enthusiastic advocates have been busily at work, in many places, to procure indisputable evidence of its value through various experiments, and especially through the final introduction of manual work into the respective schools. In this way we can explain to ourselves the apparent quiet on the battle field after so much fighting.

But this stillness does not indicate entire cessation of the struggle. It is true, the foremost men in educational matters are in sympathy with our new idea, but we have yet to overcome the spirit of conservatism in the teacher, the prejudices and indifference of the mass of the people, the scrupulousness, narrow-mindedness and egotism of boards of education, who in any innovation that does not originate with themselves always scent danger to their authority. You see the war is not yet over.

Our last year's endeavors were directed principally towards the systematic arrangement of the material, which in many places had been heaped up too eagerly, accompanied by a want of understanding and foresight. Friends of our new departure, outside as well as inside the school, expected too much of it, tried to make more out of it than was warranted

by circumstances; they did too much, introduced into the school all kinds of handicraft, but there was at the same time visible a want of system, of rational connection between these different manual occupations; what was wanting most of all, was the connecting link between manual work on the one hand and the brain-work on the other. No wonder, therefore, that the expected results were not realized; but it was apparent that the mental work in the different classes of the school showed deficiencies, and that the achievements in the workshop were of too purely mechanical a nature.

Such an unsatisfactory state of things, however, stimulated to renewed experiments, and now we see them conducted with more precaution and in a more rational spirit, by making a better choice of subjects for manual labor and by eliminating all subjects not thus far satisfactory.

The results during the present year--particularly in Europe--have, in consequence, been much more valuable, if we may judge from the reports obtained from there. The more careful precautions and more rational proceeding have attracted an increased number of unprejudiced observers, disposing them in favor of the new departure in school life.

In the kingdom of Saxony, also in Prussia, Hessen, and Baden, the respective governments are already in possession of proposals in regard to the introduction of our school-reform, and these proposals have at least received the promise of consideration. The government of Saxony have even appointed a commission to report on the feasibility of the reform in question. Let us hope that the movement so auspiciously inaugurated will meet with the success it so richly deserves.*

Even in this country, the question as to the manual training of youth is being pushed to the front. But what we have achieved in this field is not commensurate with the enthusiasm with which the new idea has been received. The fact is, we are not yet prepared to give it a practical test—we have at present no teachers specially trained for instruction in manual labor, and not until this want no longer exists can we expect any real progress in this direction. This is a hint for our teachers to acquaint themselves with the new methods and to make themselves fit for the task; they surely will find it to their advantage. In the meantime those leaders in the field of education who have befriended the new idea, and have an understanding of its whole scope must continue their propaganda in its behalf. You know, as well as I do, the names

* Indeed, it seems our hopes are not futile. Just now the news reaches me that manual training has been made obligatory at the Royal Normal Schools in Dresden and Gera.

of those gentlemen in this country who have interested themselves in the subject of manual training, although it is very likely that your attention has not been drawn to an article written by Professor Farnam, of Yale College, New Haven, on the subject. Allow me to cite the following from this able production. —

“An old tradition of the Hohenzollern family requires that every son shall learn some handicraft. The present Crown Prince is a joiner; one of his sons, if I am not mistaken, is a bookbinder; and thus every member of that house who ascends the throne of Prussia possesses, in addition to his military and literary education, a purely manual education in some mechanical art.

“If skill in joinery is thought essential to the education of a sovereign, whose bank account is kept good by the income of estates and taxation, and the greater part of whose life is devoted to military, governmental, and ceremonial affairs, it would seem not extravagant to assume that a sovereign who earns his daily bread in the dull routine of industrial toil should be equipped with at least the rudiments of manual training. Yet it is only within a very few years that the question of supplying such an education to the fifty millions of sovereigns who rule this country has even been mooted; its practical realization, save on an experimental scale, is still in the future.....”

“That some kind of manual training is desirable, simply as a part of the general education of a child, and not as a preparation for any particular career, is generally held by the most advanced thinkers of the day, and has long been conceded by the practice of those who are able to afford it. Are not children whose parents have the requisite means constantly encouraged to engage in games and sports and the exercise of small handicrafts, which train the hand and the eye, perhaps without consciousness of effort on the part of the children? As they grow older, does not every Christmas bring its quota of carpenters' benches, printing presses, scroll saws, toy ships and engines, etc., to develop the mechanical faculties of the boys, while the girls are gradually initiated into the mysteries of sewing, embroidery, etc.?”

“If such exercises, pursued as a pastime, are thought useful and good, how much more valuable must they be when pursued with method. The whole tendency of modern education, since the days of Froebel, is to introduce more and more the training of the hand and the eye as a supplement to—nay, as the very groundwork of the training of the mind. It is

claimed, and the claim seems reasonable, that such an education not only cultivates the skill of the member so trained, but that it aids materially in the acquisition of other knowledge; that it develops observation; that it assists especially the pupils who have little capacity for book-learning, but who frequently have decided mechanical aptitudes, by developing their latent faculties and giving them more self-reliance and courage; and the knowledge gained of materials and processes is exceedingly useful to any one, whatever his future pursuit may be."

Professor Farnam alludes to the position taken by W. T. Harris, in regard to the introduction of manual industry into the school, and cannot understand what induces this eminent scholar and educator to place himself in opposition to it. You all know of W. T. Harris, for many years superintendent of schools in St. Louis, and always considered the most reliable authority in school matters in this country. Of course, I as well as you, regret most sincerely his being opposed to us upon this important issue. Professor Farnam, citing in his article what Mr. Harris has to say against the matter, makes it his special task to refute him and does this successfully.

But I am glad to be able to tell you that the position taken by W. T. Harris is a rather isolated one. There are a great number of men of science and others of standing, interested in all matters pertaining to the education of the people, who have, during the last year, taken the opportunity to visit and inspect our Workingman's School in New York, all of whom have expressed to me, in a most enthusiastic manner, their entire satisfaction with what they have seen there.

Dr. José Castro Fernandez, son of the President of Costa Rica, spent two weeks with us, studying every feature of our school, providing himself with all available programmes and copying our school, as it were, in order to reorganize the schools in his country after the model thus obtained. In the cooperation of manual work and brain work, he saw at once a powerful agent for civilizing his countrymen, scarcely yet touched by any culture, and for counterbalancing the prevailing tendency to bigotry and superstition. In the name of his government, he made an agreement with us to send, at first, fifteen or twenty boys from his country, at the age of about twelve years, as pupils to our school, in order to be educated there as teachers for the schools at their own home.

We have also been visited by many gentlemen and ladies from different parts of the country, interested in educational matters, and have uniformly heard from them expressions of entire

approval. Upon several occasions deputations have come from other cities for the purpose of examining and reporting upon the methods employed in our school. Not curiosity, but a deep interest in our work, and a desire to adopt, as far as possible, its distinctive features, have attracted these friends toward our institution.

Before reporting to you the improvement we have made in our school, since I last gave you an account of its working, I will state, briefly, that in the City of New York a school similar to our Workingman's School has been established. I refer to the Hebrew Technical Institute. The principal of this school is Mr. Leipziger, a German-American. Although we must regret the denominational character of this institution we gladly recognize in it a furtherance of our cause.

It is, of course, of special importance to our object just now, to make known our endeavors toward enlightening the public in regard to the real facts relating to our movement; for what most impedes the introduction of the same is its not being rightly understood; clear the way for a better appreciation of the merits of manual training and soon we shall have won the day. There was a time when prejudice impeded the introduction of the potato into Europe,—how do we account for this seemingly strange fact? People mistook the ill-tasting berries of the potato-plant for its esculent tuber. A similar misunderstanding counterbalances our efforts regarding the recognition of the value of manual training.

Therefore, what we have to do for the better understanding of the real merits of manual training, must at present be limited to putting forward the principal features of our new departure, to wit: 1st. Being of a creative nature, manual training preceeds our object lessons. 2d. Our new method is not intended to prepare for a special branch of industry, inasmuch as it underlies every kind of industry. 3d. The fundamental principle in regard to the arrangement of the objects for manual work is that of development, and is in close connection with the intellectual work of the school; that is, workshop and school-room are in close and systematic relation with each other,—what is taught in the school room is to be wrought into a plastic form in the workshop, and what is here created is there to be taught in principle. 4th. Instruction in drawing is in close relation to the exercises in the workshop. Each object of manual labor is first to be sketched and then carefully drawn. 5th. We must declare emphatically that our aim is not to predispose a pupil to a certain industrial pursuit, but only to be a help to him in finding out that sort of calling most suitable to his mental and physical endowments. 6th.

We must lay stress on the fact, that we endeavor to include the entire human being within our scope, that we intend to educate the whole mass of the people and not those alone who may be better endowed mentally by nature. 7th. We direct attention to the fact that a well planned manual training, in connection with mental training, is the only natural proceeding in educating children, because it corresponds with the progressive development of their nature.

In regard to the working of our system in the New York Workingman's school, I am in a position to report progress in these different directions, during the five years of its existence.

1st. There has been progress in selecting the proper material for our workshop, a subject of great importance. We proceed now according to the following scheme: first, we use clay adapted to the tender hand of the child. After that, we use paper, card-board, and leather. Our next step is to the use of wood, beginning with the softest kind. Our last resort is to the various metals, of which lead is chosen to start with. Selecting thus the materials, our plan is simply adapted to the plan followed by the instruction in natural history. 2d. There has been progress in the selection of tools used. The various tools we use are not resorted to indiscriminately, but their use is wholly dependent on a preconcerted plan. We start with the plain chisel, passing over to the knife, the scissors and the saw. After these tools for filing and separating have been sufficiently used, we pass to the hammer, the tongues and the screw. Having accomplished our purpose through the use of these various tools, we resort to the steam-engine. The different parts of it have to be represented in drawing by the children, who afterwards model them and finally put the parts together. Our most advanced class has in the course of last year successfully operated with steam power. The order in which we use our tools corresponds with the plan according to which the science of physics is generally taught. 3d. There has been progress in regard to the choosing of appropriate objects on which to work, starting with the simplest fundamental forms of geometry, passing from these to the plain, constructing at last the solid in accordance with the principles governing its formation and becoming acquainted with its cubical contents. In conclusion, the entire ground passed over is reviewed with reference to forms we meet in our daily life.

To this series of objects for manual training corresponds the plan generally laid out for teaching mathematics. We cannot value too highly such a reciprocity in working. We

have progressed also in the branch of our artistic work, in free hand drawing and modeling. In regard to this art I will only add, that at the end of the school year we were surprised by observing how the pupils of the highest grade proved themselves capable, without any aid whatever, of modeling relief-maps with clay from the maps drawn by themselves.

A particular feature of our course in modeling is, that our pupils do not make their forms by taking away but on the contrary by adding in order to represent the desired form. The manner in which they proceed in adding the smallest particles serves us as a criterion for judging the proficiency of their workmanship. All our visitors have been pleased with this way of proceeding in regard to modeling.

By experimenting in this manner something will always be gained, so that at the end we shall have the satisfaction of the triumph of our cause, - our new departure will become a feature of our public schools.

In conclusion, allow me to invite you to give your consideration to the following sentences :

As in the domain of moral life we recognize the fundamental fact that moral experience must precede the deeper and truer moral insight, so in the domain of the school, in the intellectual training of the young, we make it our constant aim to let the acquisition of knowledge, the apprehension of truth, grow out of the experience of the pupils themselves. That method of instruction which consists in cramming the heads of little children with rules, definitions, abstractions, which they do not understand and with facts which they cannot assimilate, must be banished out of every school. With unremitting zeal must we stand guard in future that such a destructive method may never pass the threshold of our schools. "Deed not creed," is the educational principle to which we must adhere. First must come the actual acquaintance with things and processes, and then the rule, the definition. First, the child must learn to use its senses, to see for itself, to hear for itself, to obtain clear impressions of the exterior world, to express its nature in productive action, before we can lead it to systematic reflection and to the formulation of its thoughts, and such truths as are the result of the child's own experience, come to it through the exercise of its own senses, through the labor of its own hands, it is not too much to say, will remain its lasting possessions, will be tinged with the child's own individuality, will partake of its own character and will, therefore, retain an enduring place in its life. To sum up, whatever we teach is deduced from the unchangeable nature of things themselves; nothing is taught on mere authority, mere tradition.

And now, ladies and gentlemen, permit me to elucidate what I have just said by a single practical illustration. Let us take for example a quadrilateral prism, like the one you see in my hand here. It is not difficult for even a moderately good scholar to find the cubic volume of such a prism, but it is difficult and for most persons absolutely impossible to invent the formula by means of which we find the cubic contents of the quadrilateral pyramid. Centuries have elapsed before this result was reached by one of the greatest mathematicians, to find the cubic contents of a pyramid from the prism by dividing the latter by 3. This result is generally given to the scholar to be memorized and used in practice. This the only means of solution is the reliance on mere memory. How different is our method! Our children are taught to dissect the prism in such a manner as actually to produce the pyramid, and the side-pieces that have been cut off are set together so as to form 2 pyramids. Thus our children solve the problem and discover the truth by their own experience, their own exertion, and, instead of following blindly the authority of their formula, deduce the rule through their own observation. Besides, the truth can be constantly reiterated and strengthened by the repetition of the work. The result of all we attempt can therefore be expressed in the words of Comenius, the celebrated educator of the 17th Century, "that men must be taught to draw wisdom as much as at all possible not from books but from heaven and earth, from oak-trees and from beeches."

I conclude my report with the words of Pestalozzi.—

“Eins muss in's And're greifen,
Eins durch's And're blüh'n und reifen.”



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